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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,505	07/16/2001	Akira Tsuboyama	684.3218	2262

5514 7590 06/17/2003

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NEW YORK, NY 10112

EXAMINER

DUONG, THOI V

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/904,505

Applicant(s)

TSUBOYAMA ET AL.

Examiner

Thoi V Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the c ver sh et with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the Amendment, Paper No. 17, filed May 22, 2003.

Accordingly, new claim 6 was added and claim 5 was cancelled. Currently, claims 1-4 and 6 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masi (USPN 3,844,637) in view of Hanna et al. (EP 0915144A1).

As shown in Figs. 1 and 2, Masi discloses a luminescence device, comprising a pair of electrodes 14 and 18, and an organic compound layer 20 comprising a liquid crystal compound, as a host material, and an organic phosphorescent compound, as a guest material, mixed with the liquid crystal compound (col. 2, lines 24-37), for improving the visibility of the display since phosphorescence attributable to the organic phosphorescent compound is produced (col. 2, lines 38-65). Masi discloses a luminescence device that is basically the same as that recited in claims 1, 2 and 6 except for a liquid crystal compound having an electronic carrier-transporting function and a phosphorescent function as well assuming a smectic phase. As shown in Fig. 1, Hanna et al. discloses a luminescence device comprising a liquid crystal compound

having both charge transferability and fluorescence so as to obtain strong luminescence for the display due to high mobility of electric charges (page 3, paragraphs 1 and 10; page 56, paragraphs 17 and 18; and page 57, paragraph 20). Hanna et al. also discloses that the liquid crystal compound has a liquid crystal phase comprising a smectic phase (page 58, paragraph 35). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the luminescence device of Masi with the teaching of Hanna et al. by employing a liquid crystal compound having an electronic carrier-transporting function and a phosphorescent function so as to obtain strong luminescence for the display.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masi (USPN 3,844,637) in view of Hanna et al. (EP 0915144A1) as applied to claims 1, 2 and 6 above and further in view of Bock et al. (USPN 6,437,123).

The luminescence device of Masi as modified in view of Hanna above includes all that is recited in claim 3 except for a liquid crystal compound assuming a discotic phase. Bock discloses liquid crystal compounds, which is capable of exhibiting a discotic phase, suitable for transport of holes due to strong interaction of neighbouring molecular cores in the columnar stack, and known as electric charge carriers for use in luminescence devices, including such as triphenylene, phthalocyanine, etc... (col. 1, lines 3-32) so as to enhance viewing angle of the display (col. 2, lines 24-33). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the luminescence device of Masi with the teaching of Bock et al.

by employing a liquid crystal compound assuming a discotic phase so as to enhance viewing angle of the display.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masi (USPN 3,844,637) in view of Hanna et al. (EP 0915144A1) as applied to claims 1, 2 and 6 above and further in view of Applicant's Prior Art (Fig. 3).

The luminescence device of Masi as modified in view of Hanna et al. above includes all that is recited in claim 4 except for a structure of the phosphorescent compound. Applicant's Prior Art Fig. 3 discloses a luminescence device comprising a luminescence layer 5 which includes a phosphorescent compound such as PtOEP having a planar molecular skeleton to exhibit a high luminescence efficiency (Specification, page 7, lines 1-11). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the luminescence device of Masi with the teaching of Applicant's Prior Art by employing a phosphorescent compound having a planar molecular skeleton so as to obtain a high luminescence efficiency for the device.

Response to Arguments

6. Applicant's arguments filed May 22, 2003 have been fully considered but they are not persuasive. Applicant argued that "phosphorescent" function is not "fluorescent" function. The Examiner disagrees with the Applicant's remarks since "phosphorescent" has the same meaning as "fluorescent" according to Merriam Webster's Collegiate Dictionary, Tenth Edition.

Art Unit: 2871

C nclusi n

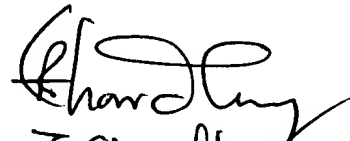
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (703) 305-3492.

Thoi Duong



06/11/2003



T. Chandhury
Primary Examiner